

Canadian Journal of Earth Sciences

Journal canadien des sciences de la terre

Volume 23 • 1986

Editor W. G. E. CALDWELL **Directeur scientifique**

Assistant to the Editor E. C. C. SETTER **Adjointe au directeur scientifique**

Department of Geological Sciences, University of Saskatchewan, Saskatoon, Saskatchewan

Associate Editors/Directeurs scientifiques associés

N. T. ARNDT
W. R. A. BARAGAR
C. BEAUMONT
R. L. CARROLL
J. J. CLAGUE
R. M. CLOWES

D. J. DUNLOP
E. FROESE
C. HILLAIRE-MARCEL
N. P. JAMES
J. W. KRAMERS

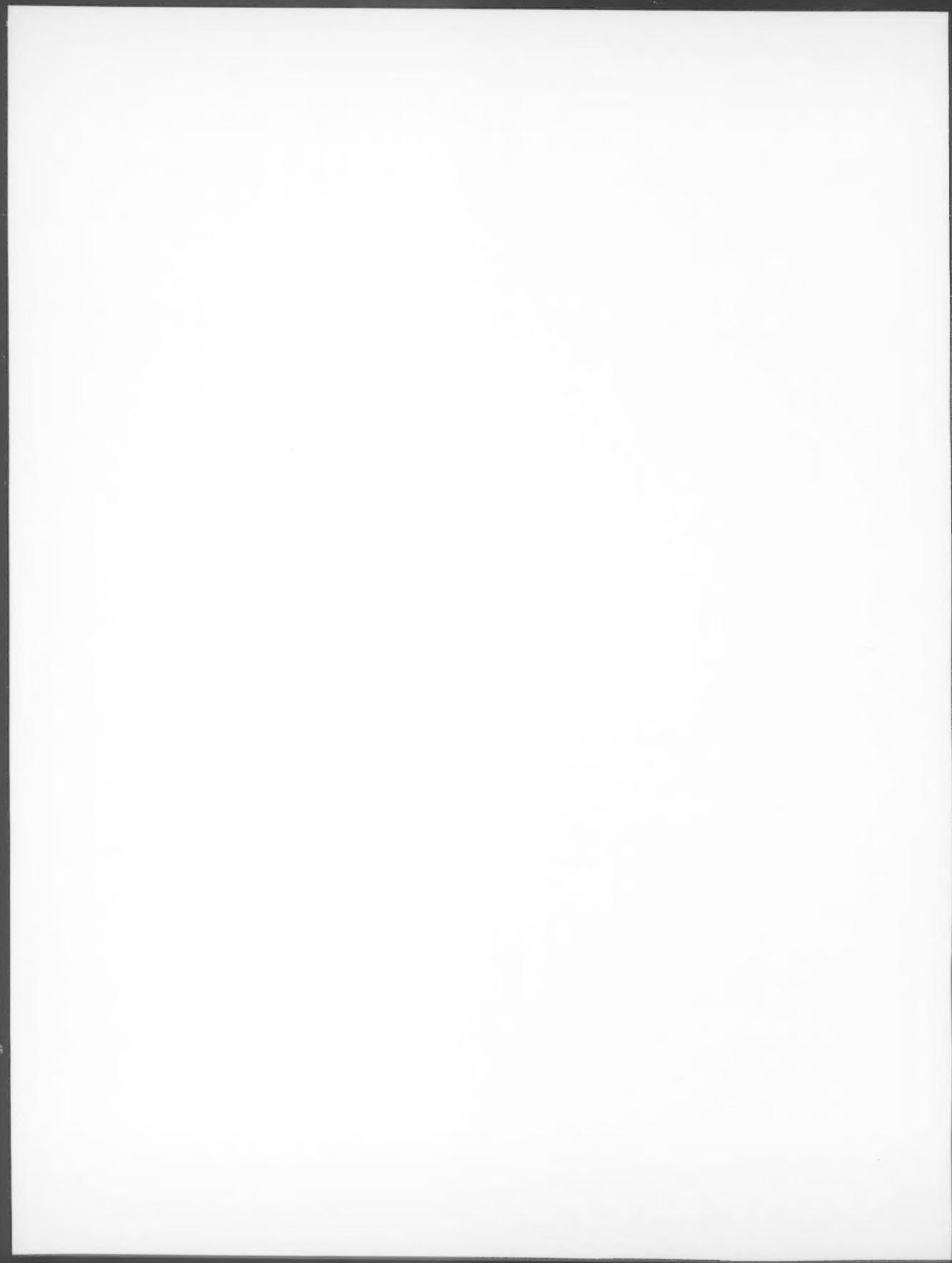
S. B. McCANN
J. A. McDONALD
J. W. H. MONGER
A. J. NALDRETT
A. V. OKULITCH
D. J. W. PIPER

PUBLISHING DEPARTMENT **SERVICE DE PUBLICATION**
at the National Research Council of Canada du Conseil National de recherches du Canada

Editor-in-chief	C. T. BISHOP	Directeur général
Assistant Editor-in-chief	P. A. REDHEAD	Directeur général adjoint
Manager	B. E. DREW	Directrice administrative
Assistant Manager	S. D. PRUDHOMME	Directeur administratif adjoint
Publishing Supervisor	F. M. KAVCIC	Chef des publications
Publication Officer	S. A. DiLABIO	Agente de publication

Published by the
National Research Council
of Canada

Publié par le
Conseil national de recherches
du Canada



CONTENTS/SOMMAIRE

JANUARY/JANVIER

Instructions to authors	JANUARY/JANVIER	iii
Recommendations aux auteurs		v
ARTICLES		
P. A. Cavell and H. Baadsgaard	Geochronology of the Big Spruce Lake alkaline intrusion	1
R. E. Vance	Pollen stratigraphy of Eaglenest Lake, northeastern Alberta	11
Daniel R. Lux	$^{40}\text{Ar}/^{39}\text{Ar}$ ages for minerals from the amphibolite dynamothermal aureole, Mont Albert, Gaspe, Quebec	21
F. Corfu and H. Wallace	U-Pb zircon ages for magmatism in the Red Lake greenstone belt, northwestern Ontario	27
Elliott T. Burden, John H. McAndrews, and Geoffrey Norris	Palynology of Indian and European forest clearance and farming in lake sediment cores from Awenda Provincial Park, Ontario	43
Elliott T. Burden, Geoffrey Norris, and John H. McAndrews	Geochemical indicators in lake sediment of upland erosion caused by Indian and European farming, Awenda Provincial Park, Ontario	55
David J. A. Evans and Robert J. Rogerson	Glacial geomorphology and chronology in the Selamiut Range – Nachvak Fiord area, Torngat Mountains, Labrador	66
Robert R. Reisz and David S. Berman	<i>Ianthasaurus hardestii</i> n. sp., a primitive edaphosaur (Reptilia, Pelycosauria) from the Upper Pennsylvanian Rock Lake Shale near Garnett, Kansas	77
A. Turek, T. M. Carson, Patrick E. Smith, W. R. Van Schmus, and W. Weber	U-Pb zircon ages for rocks from the Island Lake greenstone belt, Manitoba	92
J. Gordon Ogden III	An alternative to exotic spore or pollen addition in quantitative microfossil studies	102
NOTES		
F. Corfu and A. J. Andrews	A U-Pb age for mineralized Nipissing diabase, Gowganda, Ontario	107
John P. Greenhouse and Mark Monier-Williams	A gravity survey of the Dundas buried valley west of Copetown, Ontario	110
C. Wang, R. R. Stea, G. J. Ross, and D. Holmstrom	Age estimation of the Shulie Lake and Eatonville tills in Nova Scotia by pedogenic development	115
J. F. Lerbekmo and R. M. St. Louis	The terminal Cretaceous iridium anomaly in the Red Deer Valley, Alberta, Canada	120
DISCUSSIONS		
R. I. Thorpe	U-Pb geochronology of the Coldwell Complex, northwestern Ontario, Canada: Discussion	125
A. Turek, Patrick E. Smith, and D. T. A. Symons	U-Pb geochronology of the Coldwell Complex, northwestern Ontario, Canada: Reply	127

FEBRUARY/FÉVRIER

ARTICLES		
Dale Leckie	Petrology and tectonic significance of Gates Formation (early Cretaceous) sediments in northeast British Columbia	129
H. C. Halls	Paleomagnetism, structure, and longitudinal correlation of Middle Precambrian dykes from northwestern Ontario and Minnesota	142
M. M. Kehlenbeck	Folds and folding in the Beardmore–Geraldton fold belt	158
Robert J. Wetmiller	Earthquakes near Rocky Mountain House, Alberta, and their relationship to gas production facilities	172
D. W. Davis and G. R. Edwards	Crustal evolution of Archean rocks in the Kakagi Lake area, Wabigoon Subprovince, Ontario, as interpreted from high-precision U-Pb geochronology	182
John D. Greenough and V. S. Papezik	Petrology and geochemistry of the early Mesozoic Caraquet dyke, New Brunswick, Canada	193
I. O. Oshin and J. H. Crochet	The geochemistry and petrogenesis of ophiolitic volcanic rocks from Lac de l'Est, Thetford Mines Complex, Quebec, Canada	202
Stephen R. Westrop	New ptychaspidid trilobites from the Upper Cambrian Mistaya Formation of southern Alberta	214
C. M. Lesher, A. M. Goodwin, I. H. Campbell, and M. P. Gorton	Trace-element geochemistry of ore-associated and barren, felsic metavolcanic rocks in the Superior Province, Canada	222
W. F. Fahrig, K. W. Christie, E. H. Chown, D. Janes, and N. Machado	The tectonic significance of some basic dyke swarms in the Canadian Superior Province with special reference to the geochemistry and paleomagnetism of the Mistassini swarm, Quebec, Canada	238

NOTES

Fariborz Goodarzi Anisotropic fragments in strongly folded and faulted coals from the Rocky Mountain area of southeast British Columbia	254
W. H. Mathews and R. M. Bustin Vitrinite reflectances from Eocene rocks of southern British Columbia, a regional reconnaissance	259
T. McCann and R. K. Pickerill The trace fossil <i>Yakutatia emersoni</i> from the Cretaceous Kodiak Formation of Alaska	262
Detlef Wolf On deglaciation-induced perturbations of the geoid	269

MARCH/MARS

ARTICLES

J. M. Ryder and B. Thomson Neoglaciation in the southern Coast Mountains of British Columbia: chronology prior to the late Neoglacial maximum	273
Sven Y. Larsson and Colin W. Stearn Silurian stratigraphy of the Hudson Bay Lowland in Quebec	288
Rolf Ludvigsen and Stephen R. Westrop Classification of the Late Cambrian trilobite <i>Idiomesus</i> Raymond	300
John K. Park and James D. Aitken Paleomagnetism of the Katherine Group in the Mackenzie Mountains: implications for post-Grenville (Hadrynian) apparent polar wander	308
A. M. McNeil and R. Kerrich Archean lamprophyre dykes and gold mineralization, Matheson, Ontario: the conjunction of LILE-enriched mafic magmas, deep crustal structures, and Au concentration	324
J. Keith Rigby and Q. H. Goodbody <i>Malluviospongia</i> , a new Devonian heteractinid sponge from the Bird Fiord Formation of southwestern Ellesmere Island, Northwest Territories, Canada	344
A. V. Okulitch, J. J. Packard, and A. I. Zolnai Evolution of the Boothia Uplift, arctic Canada	350
Charles F. Gower, Philippe Erdmer, and Richard J. Wardle The Double Mer Formation and the Lake Melville rift system, eastern Labrador	359
Neville F. Alley and Stephen R. Hicock The stratigraphy, palynology, and climatic significance of pre-middle Wisconsin Pleistocene sediments, southern Vancouver Island, British Columbia	369
Stephen R. Hicock and Nathaniel W. Rutter Pleistocene aminostratigraphy of the Georgia Depression, southwest British Columbia	383
P. Lapointe, W. A. Morris, and K. L. Harding Interpretation of magnetic susceptibility: a new approach to geophysical evaluation of the degree of rock alteration	393
M. J. Heaton and R. R. Reisz Phylogenetic relationships of captorhinomorph reptiles	402
Phillip M. Youngman The extinct short-faced skunk <i>Brachyprotoma obtusata</i> (Mammalia, Carnivora): first records for Canada and Beringia	419

NOTES

D. M. Cruden and O. Hungr The debris of the Frank Slide and theories of rockslide—avalanche mobility	425
J. A. McKeague, P. A. Schuppli, and H. Kodama Glauconite nodules in a Nampa pedon from Alberta	432

DISCUSSIONS

J. F. (Derick) Nixon Observations of soil freezing and frost heave at Inuvik, Northwest Territories, Canada: Discussion	436
M. W. Smith Observations of soil freezing and frost heave at Inuvik, Northwest Territories, Canada: Reply	438

APRIL/AVRIL

ARTICLES

Hilary A. Plint and Peter H. von Bitter Windsor Group (Lower Carboniferous) conodont biostratigraphy and palaeoecology, Magdalen Islands, Quebec, Canada	439
H. Helmstaedt and W. A. Padgham A new look at the stratigraphy of the Yellowknife Supergroup at Yellowknife, N.W.T.—implications for the age of gold-bearing shear zones and Archean basin evolution	454
Mario Coniglio Synsedimentary submarine slope failure and tectonic deformation in deep-water carbonates, Cow Head Group, western Newfoundland	476
A. de Vernal et R. J. Mott Palynostratigraphie et paléoenvironnements du Pléistocène supérieur dans la région du lac Bras d'Or, île du Cap-Breton, Nouvelle-Écosse	491
Lewis H. King, Gordon B. J. Fader, W. A. M. Jenkins, and Edward L. King Occurrence and regional geological setting of Paleozoic rocks on the Grand Banks of Newfoundland	504

Burns A. Cheadle	Alluvial-playa sedimentation in the lower Keweenawan Sibley Group, Thunder Bay District, Ontario	527
Frederick A. Michel	Isotope geochemistry of frost-blister ice, North Fork Pass, Yukon, Canada	543
H. M. French and W. H. Pollard	Ground-ice investigations, Klondike District, Yukon Territory	550
Christian Picard et Michel Piboule	Pétrologie des roches volcaniques du sillon de roches vertes archéennes de Matagami-Chibougamau à l'ouest de Chapais (Abitibi est, Québec). 1. Le groupe basal de Roy	561

NOTE

M. J. Melchin and A. C. Lenz	Uncompressed specimens of <i>Monograptus turriculatus</i> (Barrande, 1850) from Cornwallis Island, Arctic Canada	579
-------------------------------------	--	-----

DISCUSSIONS

Janusz J. Wasowski and Robert D. Jacobi	The tectonics and depositional history of the Ordovician and Silurian rocks of Notre Dame Bay, Newfoundland: Discussion	583
C. G. Elliott and P. F. Williams	The tectonics and depositional history of the Ordovician and Silurian rocks of Notre Dame Bay, Newfoundland: Discussion	586
R. J. Arnott, W. S. McKerrow, and L. R. M. Cocks	The tectonics and depositional history of the Ordovician and Silurian rocks of Notre Dame Bay, Newfoundland: Reply	588

MAY/MAI

ARTICLES

E. Irving, P. J. Wynne, M. E. Evans, and W. Gough	Anomalous paleomagnetism of the Crowsnest Formation of the Rocky Mountains	591
Robert E. Turner	New and revised acritarch taxa from the Upper Devonian (Frasnian) of Alberta, Canada	599
L. W. Sobczak, U. Mayr, and J. F. Sweeney	Crustal section across the polar continent-ocean transition in Canada	608
J. Dostal, W. R. A. Baragar, and C. Dupuy	Petrogenesis of the Natkusiak continental basalts, Victoria Island, Northwest Territories, Canada	622
D. P. Moecher, D. Perkins III, P. J. Leier-Englehardt, and L. G. Medaris, Jr.	Metamorphic conditions of late Archean high-grade gneisses, Minnesota River valley, U.S.A.	633
Peter A. Nielsen	Metamorphism of the Arseno Lake area, N.W.T., Canada: an Abukuma facies series of Aphebian age	646
Michael D. Higgins and R. Doig	Geochemical constraints on the differentiation processes that were active in the Sept Iles complex	670
Aicha Achab	Assemblages de chitinozoaires dans l'Ordovicien inférieur de l'est du Canada	682
D. M. Gray and R. J. Granger	<i>In situ</i> measurements of moisture and salt movement in freezing soils	696
J. M. Hurst and R. K. Pickerill	The relationship between sedimentary facies and faunal associations in the Llandovery siliciclastic Ross Brook Formation, Arisaig, Nova Scotia	705

NOTES

Garry K. C. Clarke, Robert D. Meldrum, and Sam G. Collins	Measuring glacier-motion fluctuations using a computer-controlled survey system	727
B. H. Luckman, M. S. Kearney, R. H. King, and A. B. Beaudoin	Revised ^{14}C age for St. Helens Y tephra at Tonquin Pass, British Columbia	734
R. L. Mackenzie and J. A. Westgate	A microcomputer program for the ASTM method of grain-size analysis	737
Robert J. Elias and Caroline J. Buttler	Late Ordovician solitary rugose corals preserved in life position	739

DISCUSSIONS

B. De Saint-André and J. R. Lancelot	Rb-Sr dating of the Bokan Mountain granite complex and its country rocks: Discussion	743
Richard Lee Armstrong	Rb-Sr dating of the Bokan Mountain granite complex and its country rocks: Reply	744

JUNE/JUIN

W. H. Mathews Symposium: A celebration/Symposium W. H. Mathews : Une célébration
October 10, 1984 / Le 10 octobre 1984
Vancouver, B.C.

H. J. Greenwood and John G. Fyles	W. H. Mathews Symposium: A celebration/Symposium W. H. Mathews : Une célébration	857
Garry K. C. Clarke	Professor Mathews, outburst floods, and other glaciological disasters	859

June M. Ryder and Michael Church The Lillooet terraces of Fraser River: a palaeoenvironmental enquiry	869
John J. Clague The Quaternary stratigraphic record of British Columbia—evidence for episodic sedimentation and erosion controlled by glaciation	885
J. G. Souther The western Anahim Belt: root zone of a peralkaline magma system	895
ARTICLES	
J. Tuach, P. H. Davenport, W. L. Dickson, and D. F. Strong Geochemical trends in the Ackley Granite, southeast Newfoundland: their relevance to magmatic–metallagenic processes in high-silica granitoid systems	747
Bernd-D. Erdtmann and Jack W. Botsford A new early Tremadoc (La1) graptolite faunule from western Newfoundland: its Australian affinity and biofacies relations	766
J. Menzies Inverse-graded units within till in drumlins near Caledonia, southern Ontario	774
Werner Schwarzhans Fish otoliths from the lower Tertiary of Ellesmere Island	787
C. R. Burn, F. A. Michel, and M. W. Smith Stratigraphic, isotopic, and mineralogical evidence for an early Holocene thaw unconformity at Mayo, Yukon Territory	794
A. B. Beaudoin and R. H. King Using discriminant function analysis to identify Holocene tephras based on magnetite composition: a case study from the Sunwapta Pass area, Jasper National Park	804
Bruce J. Douglas Deformational history of an outlier of metasedimentary rocks, Coast Plutonic Complex, British Columbia, Canada	813
Lawrence B. Aspler and J. A. Donaldson Penecontemporaneous sandstone dykes, Nonacho Basin (early Proterozoic, Northwest Territories): horizontal injection in vertical, tabular fissures	827
Panos G. Kelamis, Einar Kjartansson, and E. George Marlin Post-stack depth migration in the frequency–space domain	839
NOTE	
R. A. Hewitt and I. Birker The <i>Thallograptus</i> and <i>Diplospirograptus</i> from the Silurian Eramosa Member in Hamilton (Ontario, Canada)	849

JULY/JUILLET

ARTICLES	
C. R. Harington and Allan C. Ashworth A mammoth (<i>Mammuthus primigenius</i>) tooth from late Wisconsin deposits near Embden, North Dakota, and comments on the distribution of woolly mammoths south of Wisconsin ice sheets	909
C. C. Smart and D. C. Ford Structure and function of a conduit aquifer	919
Ronald Doig A method for determining the frequency of large-magnitude earthquakes using lake sediments	930
K. W. F. Howard and P. Beck Hydrochemical interpretation of groundwater flow systems in Quaternary sediments of southern Ontario	938
Lisa A. Gilbert and K. A. Foland The Mont Saint Hilaire plutonic complex: occurrence of excess ^{40}Ar and short intrusion history	948
D. J. Huntley, M. K. Nissen, J. Thomson, and S. E. Calvert An improved alpha scintillation counting method for determination of Th, U, Ra-226, Th-230 excess, and Pa-231 excess in marine sediments	959
F. Corfu and J. Wood U–Pb zircon ages in supracrustal and plutonic rocks; North Spirit Lake area, northwestern Ontario	967
James H. Bourne Geochemistry of the felsic metavolcanic rocks of the Wakeham Group: a metamorphosed peralkaline suite from the eastern Grenville Province, Quebec, Canada	978
F. S. Medioli, C. T. Schafer, and D. B. Scott Distribution of recent benthonic foraminifera near Sable Island, Nova Scotia	985
Michael J. Retelle Glacial geology and Quaternary marine stratigraphy of the Robeson Channel area, northeastern Ellesmere Island, Northwest Territories	1001
Georgia Pe-Piper and Lubomir F. Jansa Triassic olivine-normative diabase from Northumberland Strait, eastern Canada: implications for continental rifting	1013
G. E. Ray The Hozameen fault system and related Coquihalla serpentinite belt of southwestern British Columbia	1022
NOTE	
I. I. Sey, E. D. Kalacheva, and G. E. G. Westermann The Jurassic ammonite <i>Pseudolioceras</i> (<i>Tugurites</i>) of the Bering Province	1042

AUGUST/AOÛT

ARTICLES	
L. C. Struik Imbricated terranes of the Cariboo gold belt with correlations and implications for tectonics in southeastern British Columbia	1047

L. R. Newitt and E. R. Niblett Relocation of the north magnetic dip pole	1062
T. W. Melnyk and A. M. M. Skeet An improved technique for the determination of rock porosity	1068
F. Corfu and G. M. Stott U-Pb ages for late magmatism and regional deformation in the Shebandowan Belt, Superior Province, Canada	1075
J. S. Klasner and E. R. King Precambrian basement geology of North and South Dakota	1083
Wolfgang Kalkreuth and C. Willem Langenberg The timing of coalification in relation to structural events in the Grande Cache area, Alberta, Canada	1103
Maurice Brunel et Jean-Robert Kienast Étude pétro-structurale des chevauchements ductiles himalayens sur la transversale de l'Everest-Makalu (Népal oriental)	1117
J. Brendan Murphy and Andrew J. Hynes Contrasting secondary mobility of Ti, P, Zr, Nb, and Y in two metabasaltic suites in the Appalachians	1138
H. Dinel, P. J. H. Richard, P. E. M. Levésque et A. Larouche Origine et évolution du marais tourbeux de Keswick, Ontario, par l'analyse pollinique et macrofossile	1145
Neville F. Alley, Keith W. G. Valentine, and Robert J. Fulton Paleoclimatic implications of middle Wisconsinan pollen and a paleosol from the Purcell Trench, south central British Columbia	1156
Christian Picard et Michel Piboule Pétrologie des roches volcaniques du sillon de roches vertes archéennes de Matagami-Chibougamau à l'ouest de Chapais (Abitibi est, Québec). 2. Le groupe hautement potassique d'Opémisca	1169
H. W. Josenhans, J. Zevenhuizen, and R. A. Klassen The Quaternary geology of the Labrador Shelf	1190
Gilbert Klapper and C. T. Foster, Jr. Quantification of outlines in Frasnian (Upper Devonian) platform conodonts	1214
NOTES	
W. A. S. Sarjeant and R. A. Thulborn Probable marsupial footprints from the Cretaceous sediments of British Columbia	1223
P. F. Williams and J. P. A. Noble <i>Saffordophyllum</i> and evidence for thrusting in the Cobbs Arm sequence, Newfoundland	1228

SEPTEMBER/SEPTEMBRE

ARTICLES

K. V. Rao, M. K. Seguin, and E. R. Deutsch Paleomagnetism of Early Cambrian redbeds on Cape Breton Island, Nova Scotia	1233
L. R. Fyffe and S. M. Barr Petrochemistry and tectonic significance of Carboniferous volcanic rocks in New Brunswick	1243
K. Wang, P. Y. Shen, and A. E. Beck On the effects of thermal properties structure and water bottom temperature variation on temperature gradients in lake sediments	1257
J. E. Sorauf and A. E. H. Pedder Late Devonian rugose corals and the Frasnian-Famennian crisis	1265
David W. Dilkes and Robert R. Reisz The axial skeleton of the Early Permian reptile <i>Eocaptorhinus laticeps</i> (Williston)	1288
Patrick R. Racheboeuf and Paul Copper The oldest chonetacean brachiopods (Ordovician-Silurian, Anticosti Island, Québec)	1297
Jin Jisuo and Paul Copper The Early Silurian brachiopod <i>Pentameroides</i> from the Hudson Bay Lowlands, Ontario	1309
Samuel Y. Johnson, Robert A. Zimmermann, Charles W. Naeser, and John T. Whetten Fission-track dating of the tectonic development of the San Juan Islands, Washington	1318
Jean Van Den Driessche et Henri Maluski Mise en évidence d'un cisaillement ductile dextre d'âge crétacé moyen dans la région de Tête Jaune Cache (nord-est du complexe métamorphique Shuswap, Colombie-Britannique)	1331
Jan Bednarzki Late Quaternary glacial and sea-level events, Clements Markham Inlet, northern Ellesmere Island, Arctic Canada	1343
T. Jerzykiewicz and A. R. Sweet The Cretaceous-Tertiary boundary in the central Alberta Foothills. I: Stratigraphy	1356
A. R. Sweet The Cretaceous-Tertiary boundary in the central Alberta Foothills. II: Miospore and pollen taxonomy	1375
H. M. French, L. Bennett, and D. W. Hayley Ground ice conditions near Rea Point and on Sabine Peninsula, eastern Melville Island	1389
Paul S. Mortensen and Brian Jones The role of contemporaneous faulting on Late Silurian sedimentation in the eastern M'Clintock Basin, Prince of Wales Island, Arctic Canada	1401
Tsai-Way Wu and Robert Kerrich Combined oxygen isotope - compositional studies of some granitoids from the Grenville Province of Ontario, Canada: implications for source regions	1412

NOTES

C. D. Frost and R. A. Burwash Nd evidence for extensive Archean basement in the western Churchill Province, Canada	1433
A. J. Boucot and S. R. McCutcheon Ziegler's Blisters in <i>Pentameroides</i> from a Lower Silurian fossil locality in the northeastern part of the Mascarene-Nerepis Belt, southern New Brunswick	1437
Daniel J. Conley, Claire L. Schelske, Brian G. Dempsey, Charles D. Campbell, and Teresa L. Newberry Distribution of biogenic silica in the surficial sediments of Lake Michigan	1442

COMMUNICATION

Dale A. Sketchley, A. J. Sinclair, and C. I. Godwin Early Cretaceous gold-silver mineralization in the Sylvester allochthon, near Cassiar, north central British Columbia

OCTOBER/OCTOBRE

Silver vein deposits / Des gîtes de filons d'argent
 GAC/MAC Symposium / AGC/AMC Symposium
 May 14, 1984 // Le 14 mai 1984
 London, Ontario

A. J. Andrews Silver vein deposits: summary of recent research 1459
 A. Changkakoti, R. D. Morton, J. Gray, and C. J. Yonge Oxygen, hydrogen, and carbon isotopic studies of the Great Bear Lake silver deposits, Northwest Territories 1463
 A. Changkakoti and R. D. Morton Electron microprobe analyses of native silver and associated arsenides from the Great Bear Lake silver deposits, Northwest Territories, Canada 1470
 A. J. Andrews, L. Owsiaicki, R. Kerrich, and D. F. Strong The silver deposits at Cobalt and Gowganda, Ontario. I: Geology, petrography, and whole-rock geochemistry 1480
 A. J. Andrews, A. Masiwec, W. A. Morris, L. Owsiaicki, and D. York The silver deposits at Cobalt and Gowganda, Ontario. II: An experiment in age determinations employing radiometric and paleomagnetic measurements 1507
 R. Kerrich, D. F. Strong, A. J. Andrews, and L. Owsiaicki The silver deposits at Cobalt and Gowganda, Ontario. III: Hydrothermal regimes and source reservoirs—evidence from H, O, C, and Sr isotopes and fluid inclusions 1519
 M. D. Goodz, D. H. Watkinson, V. Smejkal, and Z. Pertold Sulphur-isotope geochemistry of silver-sulpharsenide vein mineralization, Cobalt, Ontario 1551
 R. I. Thorpe, M. D. Goodz, I. R. Jonasson, and J. Blenkinsop Lead-isotope study of mineralization in the Cobalt district, Ontario 1568
 J. M. Franklin, S. A. Kissin, M. C. Smyk, and S. D. Scott Silver deposits associated with the Proterozoic rocks of the Thunder Bay District, Ontario 1576
 Marc Leblanc Co-Ni arsenide deposits, with accessory gold, in ultramafic rocks from Morocco 1592
 A. James Macdonald, Marek J. Kreczmer, and Stephen E. Kesler Vein, manto, and chimney mineralization at the Fresnillo silver-lead-zinc mine, Mexico 1603
 Colin I. Godwin, Pat H. Watson, and Kun Shen Genesis of the Lass vein system, Beaverdell silver camp, south-central British Columbia 1615
 L. B. Goldsmith, A. J. Sinclair, and P. B. Read Exploration implications of production and location data for Ag-rich vein deposits, Trout Lake mining camp, southeastern B.C. 1627

NOVEMBER/NOVEMBRE

ARTICLES

Erik Nielsen, Alan V. Morgan, Anne Morgan, R. J. Mott, N. W. Rutter, and C. Causse Stratigraphy, paleoecology, and glacial history of the Gillam area, Manitoba 1641
 L. Giusti The morphology, mineralogy, and behavior of "fine-grained" gold from placer deposits of Alberta: sampling and implications for mineral exploration 1662
 Rex J. E. Johnson and Rob Van der Voo Paleomagnetism of the Late Precambrian Fourchu Group, Cape Breton Island, Nova Scotia 1673
 Sandra M. Barr, Alan S. Macdonald, and John Blenkinsop The Cheticamp pluton: a Cambrian granodioritic intrusion in the western Cape Breton Highlands, Nova Scotia 1686
 Denis A. St-Onge and Jean Lajoie The late Wisconsinan olistostrome of the lower Coppermine River valley, Northwest Territories 1700
 K. Schrijver, R. Bertrand, A. Chagnon, N. Tassé, and S. R. Chevé Fluids in cupriferous dolostones and dolomite veins, Proterozoic Dunphy Formation, Labrador Trough 1709
 J. J. Veillette Former southwesterly ice flows in the Abitibi-Timiskaming region: implications for the configuration of the late Wisconsinan ice sheet 1724
 Francois Ruhlmann, Michel Raynal, and Serge Lavoie Un exemple de métasomatisme alcalin albite-uranium dans le bassin des Monts Otish, Québec 1742

Robert L. Bauer Multiple folding and pluton emplacement in Archean migmatites of the southern Vermilion granitic complex, northeastern Minnesota	1753
Mary E. Edwards and Linda B. Brubaker Late Quaternary vegetation history of the Fishhook Bend area, Porcupine River, Alaska	1765
Marc-André Bérubé, Jacques Locat, Pierre Gélinas, Jean-Yves Chagnon, and Paul Lefrançois Black shale heaving at Sainte-Foy, Quebec, Canada	1774
J. Ross Mackay The first 7 years (1978–1985) of ice wedge growth, Illisarvik experimental drained lake site, western Arctic coast	1782
W. H. Mathews and G. E. Rouse An Early Pleistocene proglacial succession in south-central British Columbia	1796
Hans-G. Machel Limestone diagenesis of Upper Devonian Nisku carbonates in the subsurface of central Alberta	1804
Bruce E. Broster Till variability and compositional stratification: examples from the Port Huron lobe	1823
NOTES	
J. Schroeder, M. Beaupré, and M. Cloutier Ice-push caves in platform limestones of the Montréal area	1842
G. W. Monaghan, W. A. Lovis, and L. Fay The Lake Nipissing transgression in the Saginaw Bay region, Michigan	1851
A. C. Lenz and M. J. Melchin A synrhabdosome of <i>Saetograptus fritschi</i> cf. <i>linearis</i> (Bouček) from Cornwallis Island, Arctic Canada	1854
G. W. Lowey, W. D. Sinclair, and L. V. Hills Additional K–Ar isotopic dates for the Carmacks Group (Upper Cretaceous), west central Yukon	1857
DISCUSSIONS	
James M. Mattinson Geochronology of ophiolites of the Newfoundland Appalachians: Discussion	1860
G. R. Dunning and T. E. Krogh Geochronology of ophiolites of the Newfoundland Appalachians: Reply	1862
R. J. Bradshaw Archean wrench fault tectonics and structural evolution of the Blake River Group, Abitibi Belt, Quebec: Discussion	1864

DECEMBER/DÉCEMBRE

ARTICLES	
Stephen R. Hicock Pleistocene glacial dispersal and history in Buttle valley, Vancouver Island, British Columbia: a feasibility study for alpine drift prospecting	1867
Maurice K. Seguin and Allen A. Petryk Paleomagnetic study of the Late Ordovician – Early Silurian platform sequence of Anticosti Island, Quebec	1880
R. A. Jamieson, O. van Breemen, R. W. Sullivan, and K. L. Currie The age of igneous and metamorphic events in the western Cape Breton Highlands, Nova Scotia	1891
J. Malpas, S. F. Foley, and A. F. King Alkaline mafic and ultramafic lamprophyres from the Ailik Bay area, Labrador	1902
Karl V. Evans and Lynn B. Fischer U–Pb geochronology of two augen gneiss terranes, Idaho—new data and tectonic implications	1919
Ed Landis, Christopher R. Barnes, and Robert K. Stevens Tempo of earliest Ordovician graptolite faunal succession: conodont-based correlations from the Tremadocian of Quebec	1928
S. Tellis and K. E. Eade Occurrence and possible tectonic significance of high-pressure granulite fragments in the Tulemalu fault zone, District of Keewatin, N.W.T., Canada	1950
Robert C. Thomson, Paul L. Smith, and Howard W. Tipper Lower to Middle Jurassic (Pliensbachian to Bajocian) stratigraphy of the northern Spatsizi area, north-central British Columbia	1963
M. A. Carson and P. A. MacLean Development of hybrid aeolian dunes: the William River dune field, northwest Saskatchewan, Canada	1974
Mel A. Reasoner and Raymond E. Healy Identification and significance of tephras encountered in a core from Mary Lake, Yoho National Park, British Columbia	1991
Dwight C. Bradley and Lauren M. Bradley Tectonic significance of the Carboniferous Big Pond Basin, Cape Breton Island, Nova Scotia	2000
Judith G. Patterson The Amer Belt: remnant of an Aphebian foreland fold and thrust belt	2012
Willem J. Vreeken Quaternary events in the Elkwater Lake area of southeastern Alberta	2024
J. F. (Derick) Nixon Thermal simulation of subsea saline permafrost	2039
A. J. Boucot, Carlton E. Brett, W. A. Oliver, Jr., and Robert B. Blodgett Devonian faunas of the Sainte-Hélène Island breccia, Montréal, Quebec, Canada	2047
E. Nyland and Qing Li Analysis of seismic instability of the Vancouver Island lithoprobe transect	2057
NOTES	
R. Pamela Reid Discovery of Triassic phylloid algae: possible links with the Paleozoic	2068

Richard J. Hebda and Rolf W. Mathewes Radiocarbon dates from Anthony Island, Queen Charlotte Islands, and their geological and archaeological significance **2071**

DISCUSSIONS

Peter R. Dawes The Nares Strait gravity anomaly and its implications for crustal structure: Discussion **2077**

H. R. Jackson and L. Koppen The Nares Strait gravity anomaly and its implications for crustal structure: Reply **2082**

Dale R. Issler and Christopher Beaumont Estimates of terrestrial heat flow in offshore eastern Canada: Discussion **2083**

Marshall Reiter and Alan M. Jessop Estimates of terrestrial heat flow in offshore eastern Canada: Reply **2085**

ERRATUM

Hans-G. Machel Erratum: Limestone diagenesis of Upper Devonian Nisku carbonates in the subsurface of central Alberta **2087**

